

# The andrologist from medicine of reproduction to sexual medicine: the Italian experience

A. LENZI\* and E. A. JANNINI†

\*Chair of Endocrinology, Department of Medical Physiopathology, University of Rome 'La Sapienza', Policlinico Umberto I, 00161 Rome, Italy, and †Course of Medical Sexology and Endocrinology, Department of Experimental Medicine, University of L'Aquila, Coppito, Bldg. 2, Room A2/54. Via Vetoio, 67100 L'Aquila, Italy

## Summary

The main andrological areas of interest, male reproductive and – more recently – sexual dysfunctions are most appropriately viewed as symptoms of the couple with medical, psychological and behavioural components that cannot be treated in a mechanical, purely medicinal manner (sexual medicine). The patient and his sexual partner must be active participants in a full continuum of care (medical sexology), the new challenge for the renewed and enriched field of andrology. In this field, the cooperation between basic researchers (such as geneticists, neurophysiologists, pharmacologists, ethologists) and a wide group of clinicians (such as endocrinologists, psychologists and psycho-sexologists, psychiatrists, urologists and gynaecologists) is of paramount importance for the andrologist at the dawn of the new field of medical sexology, which will be full of scientific gratification in the years to come.

**Keywords:** andrology, reproduction, sexology

## Introduction

Andrology is a typical bridging discipline. With the aim of recognizing, diagnosing and curing male dysfunction, as the gynaecologist does for female dysfunctions, it ranges from hormonal pathophysiology to the medical impact of male genital tract surgery.

Medical andrology, derived from endocrinology, and surgical andrology, derived from urology, have had male infertility as their main topic of clinical interest, with the biology of the male gamete as a major research area.

This article tells a story: the story of an Italian experience, which changed and enriched the andrological horizon with a new field. Many other European andrologists have followed the same journey, so this can be considered as a common paradigm.

Correspondence: Andrea Lenzi, Chair of Endocrinology, Department of Medical Physiopathology, University of Rome 'La Sapienza', Policlinico Umberto I, 00161 Rome, Italy.

E-mail: andrea.lenzi@uniroma1.it

## The fertility pathophysiologicalist

At the beginning, andrologist has been a pathophysiologicalist of the testis (Serio, 1989). The endocrinological background was used to define the fine-tuning of endocrine, paracrine, and autocrine regulation of cell-to-cell communication within the testis (Isidori *et al.*, 1990). A great effort was made to create new knowledge of male physiology, new pathophysiological hypotheses and new disease definitions (Gnessi *et al.*, 1997).

The medical andrologist has a central role in managing the cost of diagnosis and treatment procedures used in infertility (Lenzi, 2003). Further research investigated the male gamete (Lenzi, 1995), genetics of reproduction (Foresta *et al.*, 2000) the immunological regulation of male and female gamete interaction and immuno-privilege and immuno-tolerance in the testis (Dondero & Johnson, 1993). This opened the new sub-field of immunological andrology.

The study of sperm apoptosis enabled one reason for ART failure to be identified – ROS aggression with DNA fragmentation (Gandini *et al.*, 2000). In addition, sperm chromatin structure assay allowed differentiation of sperm populations and their fertilizing ability (Gandini *et al.*, 2004).

One of the most important problems in andrology was to translate the enormous body of knowledge of the pathophysiology of spermatogenesis, mature spermatozoa and sperm function into a rationale to manage infertile male patients. With the exception of gonadotropins, no drug has been demonstrated as undoubtedly effective in the therapy of infertility caused by testicular factors. Neither the European (EMA) nor the American (FDA) agency has registered any drug for male infertility to date. The only validated approach to oligo-astheno-teratozoospermia (OAT) and unexplained infertility seems to be the assisted reproduction techniques (ART). However, these are not aetiological therapies, and they have high cost and low efficacy. They have also acted as a brake on the development of new strategies for male infertility therapy. But, ART should not be regarded as a reason to discontinue research and experimental therapies to improve seminal parameters and thus risk the neglect of this area of andrology by both clinicians and pharmaceutical companies.

Therapies for male infertility can be classified as having a rational or empirical basis (Table 1). The use of carnitine in male infertility can be considered as an example representing the possible passage from empirical to rational therapeutic approach. Free and acetylated L-carnitine are accumulated and used by spermatozoa for mitochondrial  $\beta$ -oxidation and DNA and membrane protection (Lenzi *et al.*, 1996), while an antioxidant therapy (glutathione) improves sperm maturation at the epididymal level (Lenzi *et al.*, 1993). On these bases, a double-blind cross-over trial on L-carnitine and L-acetyl-carnitine in OAT demonstrated a statistically significant improvement in sperm concentration and total and forward sperm motility, and an even more significant improvement in patients with lower total motile sperm concentration (Lenzi *et al.*, 2003a, 2004).

### Paying attention to the couple and their infertility

Literature reports great differences in relative percentages; however, there is general agreement that 30% of infertile couples are affected by unexplained infertility. Seventy percent of infertilities involve female defects, but a male factor (oligo- and azoospermia) is involved in 60% of

couples. Male and female factors therefore overlap in many couples – a challenge to traditional clinical andrology. Given these numbers, the andrologist had to become accustomed to considering infertility as a symptom of the couple.

In fact, modern reproductive medicine considers the infertile couple as a whole. The clinical andrologist has thus shifted from being a simple ‘gynaecologist for men’ to a ‘physician of reproduction’, evaluating and diagnosing the male as well as the female counterpart – in other words, treating the couple. The couple’s factors are so important in reproductive medicine that consideration of the male alone must be considered as a ‘reductive’ medicine.

The diagnosis of female infertility may have a large impact on men, as they become more involved in the diagnostic ‘workout’ and treatment of infertility (Burns & Covington, 1999). However, their stress levels are greater in cases of male infertility, which may actually be more stressful for both partners than a diagnosis of female infertility. The man may feel completely excluded from the fertility decision-making process: this should be avoided during counselling. The andrologist should appreciate the gender differences when counselling infertile couples and encourage them to share their feelings with each other, which may help them to cope with any communication problems they experience (Lee *et al.*, 2001). Also to be avoided is the situation in which the male patient feels himself an involuntary instrument of the reproductive process (‘breeding bull’ syndrome), or even a victim, excluded from any participation. In these cases, both infertility itself and its evaluation and treatment are stressful experiences. For all these reasons, a recent ESHRE Guideline for infertility counselling emphasizes the importance of the psychological aspects of infertile couples, and especially of infertile men (Boivin & Kentenich, 2002).

Diagnosis and treatment of male infertility, together with the frequently extreme social pressure to become parents, can have a profound impact on psychological functioning, and several male sexual dysfunctions often result. Reduced sexual activity, hypoactive sexual desire, erectile dysfunction, and pre-mature or retarded ejaculation are often encountered by clinical andrologists treating infertile patients (Lenzi *et al.*, 2003b). The requirement to produce a semen sample can itself cause difficulty or inability to ejaculate. These patients often state that they have no such problems under normal conditions.

Erectile dysfunctions are also common in both programmed intercourse during hormone-induced ovulation, and when semen collection is required for use in an assisted reproduction programme. In pre-disposed patients, the problem is caused by the necessity for an erection on demand. This can significantly interfere with the success of such therapies and should be discussed openly with the patient. To partially overcome these sexual symptoms, in one study 50 mg of the type-V phosphodiesterase (PDE-5) inhibitor (Sildenafil) was prescribed to patients collecting

**Table 1.** Classification of andrological therapies

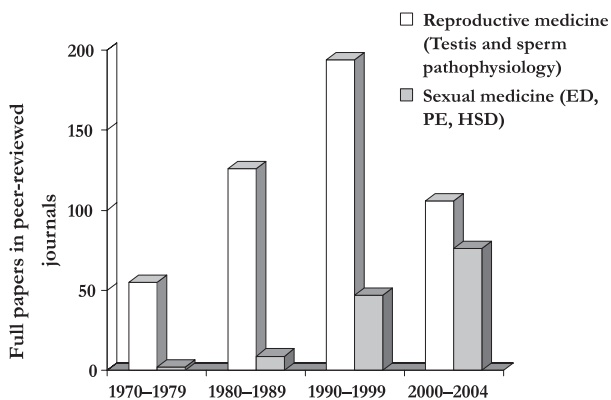
Rational (aetiological)
Antibiotics and anti-inflammatory drugs
Gonadotropins
Surgery
Empiric (possibly interfering with the pathogenetic pathway)
Evidence-based medicine criteria rarely used
Frequent anecdotal efficacy

semen for artificial insemination and to male partners of couples before post-coital testing. Sildenafil was found to be effective in increasing compliance of male patients facing infertile couple management procedures and also in improving some sperm parameters, above all the number of sperm penetrating the cervical mucus (Jannini *et al.*, 2003a).

### From reproductive medicine to sexual medicine

As it is clear that reproduction is physiologically linked to sexuality, the andrologist is also a physician of sex. This additional new role has been facilitated by the availability of Sildenafil, the first safe, effective oral treatment for impotence, and analogues such as Vardenafil and the long-acting Tadalafil (see for review Jannini *et al.*, 2003b). The Andrologist has thus moved rapidly from reproduction (= too much diagnosis, few therapies) to sexology (= therapy only, no diagnosis). This shift can be seen clearly in the scientific papers produced by the top 10 Italian andrological research groups (Fig. 1). Scientific production in sexology has increased in just the past few years. Italian public grants follow the same trend: while from 1999 to date around 3–4 reproductive andrology projects have been financed each year, funding for the first project on erectile dysfunction was granted in 2002.

The lack of knowledge of the complex pathophysiological mechanisms of impotence, ejaculation and sexual desire required a renewed research effort. As with reproductive medicine, the new sexological field examined the couple's perspective. A structured interview (SIEDY) was produced to evaluate not only organic, but also intra-psychological and relational issues in erectile dysfunction (Petroni *et al.*, 2003).



**Figure 1.** Scientific production of the 10 top Italian andrological groups in reproductive and sexual medicine. ED, erectile dysfunction; PE, pre-mature ejaculation; HSD, hypoactive sexual desire.

### From sexual medicine to medical sexology

As andrologists cannot practise reproductive medicine without considering the female factor, nor can they practise sexual medicine without considering the partner and the impact on the couple during both diagnosis and therapy. Considered in this way, the commonly accepted definition of sexual medicine seems reductive. The new approach has led to a significant increase in men seeking andrological diagnosis and treatment. However, the apparently easy treatment approach has induced some clinicians to neglect counselling and the interpersonal/relational and psychological impact of sexual dysfunction and its diagnosis and treatment (Mc Dowell *et al.*, 2001). Sexual behaviour is in fact more complicated than any other body function, being the only one involving another individual. It should be considered that diagnosis and therapy of andrological diseases interact with two biological functions – fertility and sexuality – which are more sensitive to psychological, educational, cultural, religious, and social factors than any other body function (see Wagner *et al.*, 2004 for a full discussion of this topic). This emphasizes the need for a sexological approach to sexual medicine.

### Finding the clinical andrologist's therapeutic path

Following Masters & Johnson's work (1970), the field of sexology was dominated by psychologists. Impotence and ejaculatory dysfunctions were considered by patients as almost incurable diseases, and physicians were not really interested in them. Later, when Wagner & Kaplan wrote the first book on medical sexology (1993), it was realized that most sexual problems were related to ordinary medical disorders or various surgical and pharmacological interventions, and therefore should clearly be primarily diagnosed by, referred to, and/or treated by a physician expert in handling the heavy psycho-relational impact of such conditions.

There are many men with sexual dysfunctions, and their number is expected to grow, as will awareness of the possibility of seeking help. It is clear that the best therapeutic results are obtained when the psycho-relational impact of diagnosis and therapy is taken into account. For this reason, an integrated model has been proposed, with the co-responsibility of the doctor (exclusion of physical diseases and prescription of medicines) and the psychologist (taking care of psychological aspects) in the management of dysfunctional patients (Jannini & Lenzi, 2003). There are several elements in favour of this model, but also several against, making it problematic. Any sexual dysfunction, even if caused by the most organic of causes, dramatically affects the couple's psychology, behaviour, and relationship, with profound echoes in their life. It therefore seems obvious that professional psychological help, such as a talking therapy, would be useful, if not essential. Re-establishing erectile

function or ejaculatory control is a completely different objective to that of re-establishing satisfactory sexual interaction with the partner, and when the latter is not achieved men may re-present with treatment failure or withdraw from therapy altogether (Riley, 2002). The risk with medical and surgical therapies is in fact their focus on the penis as the central dysfunctional element, failing to appreciate the couple as the real source of dysfunction. Furthermore, as sexology and sexual medicine are not taught in medical schools (Beckmann *et al.*, 1975; Pinchera *et al.*, 2003), physicians, as well some andrologists, may not feel comfortable in managing sexual health, and sentimental and sexual life may seem to be a dark room, complex and time-consuming. To further complicate the matter, psycho-sexology manuals try to demonstrate the importance of the right setting for patients with desire, erectile, or ejaculatory dysfunction (Jannini *et al.*, 2002). These are the main reasons that many specialists, such as diabetologists, cardiologists, and neurologists, avoid talking about sexual health problems. Some urologists also consider their surgical culture as inadequate in treating such symptoms. The help of a psycho-sexologist thus seems necessary.

Against the sometimes utopic integrated model are the problems of a lack of guarantee of its therapeutic outcome, the high cost of a talking therapy, and the fact that few psychologists are really able to achieve a good, effective relationship with their patients as well as a good partnership with andrologists. The Global Study of Sexual Attitudes and Behaviours (GSSAB) survey demonstrated that around the world, only 5.5% of men with a sexual dysfunction talked to a psychiatrist, psychologist or marriage counsellor about their sexual problems (Moreira *et al.*, 2005). In addition, the distinction between body and mind is cultural and artificial, and frequently not appreciated by patients. Integrated medical and psycho-sexological sex therapy ['Shared Care' (Barnes, 1999; Wagner *et al.*, 2002)] requires mutual

understanding and respect for the different disciplines involved in sexology (Jannini & Lenzi, 2003). This is not always possible, due to both medical and psychological reductionisms.

The clinical andrologist expert in medical sexology must take diagnostic and therapeutic responsibility for all male patients with sexual problems, recognizing those who need more profound psychological help. Only in these selected cases, and only if very expert, skilful, and honest therapists are available, should the patient and/or couple be referred to a psycho-sexologist. Marian Dunn, Director of the Center of Human Sexuality at the State University of New York, stated that 'Physicians must remember that they do not need to be expert sexologists, have perfect sexual relationships with their own partner, or share the values and attitudes of their patients to make them more comfortable discussing sexual matter; they need to be good interviewers, which requires a different skill set entirely' (Dunn, 2004).

## Conclusion

To end this review of the Italian experience in bridging andrology from medicine of reproduction to medical sexology through sexual medicine, we would like to stress the importance of another important role of the andrologist, no less pivotal than those discussed above: preventive counselling. One of the duties of this young science is to inform the population of the risk of particular behaviours and lifestyles (stress, smoking, alcohol, drug misuse, ignorance and prejudice in contraceptive use, promiscuity, etc.) that may affect fertility, sexuality and the risk of developing cancer and sexually transmitted diseases. Only if the andrologist more frequently advocates his/her preventive role in counselling as a true medical sexologist, shall reproductive and sexual health be not just a WHO recommendation, but a reality.

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